gotten up on crutches as soon as the wound has healed.

When the bolt is to be withdrawn, the center pin is unscrewed and the locking levers rotate back beyond the end of the bolt and flush with its surface, thus offering no possible obstacle to withdrawal.

Our procedure is to reduce the fracture under local anesthesia by Leadbetter's maneuver, check reduction by heel-palm test, and confirm by A-P and lateral x-rays. These are taken with four Michel clips, so placed in the skin about the hip that the clips and their shadows in the x-rays enable us to aim the one-quarter inch drill used to make way for the lock-bolt. We expose the trochanter for the drill under local anesthesia. X-rays check the position of the drill, which is withdrawn and the bolt immediately inserted. The bolt is locked and tightened as above described.

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DOUBLE UTERUS WITH FEATURES OF SPECIAL INTEREST

REPORT OF CASE

By CARL H. TALMAGE, M.D.
Sanitarium

THE case of double uterus here reported represents failure of fusion of the Mullerian ducts from the pelvic outlet upward, associated with partial obstruction of the introitus. It is remarkable that the patient was not aware of any pelvic abnormality, though she had been married for eleven years.

Another feature is the development of fibromyomata in both uteri, with resultant pressure symptoms. The anatomical features are similar to the case reported by Dr. Joseph B. De Lee, except that bilateral fibromyoma were present instead of a pregnancy.

REPORT OF CASE

Mrs. F. H. R., white, age forty-three. The family history was irrelevant. The patient had the usual diseases of childhood, and has since had the following: alveolar abscess, renal calculus, aet. thirty-one. She had tonsillectomy and thyroidectomy.

Menstruation began at twelve. She had regular periods of three to five days' duration, with twenty-eight-day interval. The flow has become more profuse in recent years, without associated pain or headache. During the past year, menstruation is described as very profuse and followed by weakness and pallor.

She was married at the age of thirty-two. Due to fear of childbirth, and a desire to lead an active life outside her home, she had abstained entirely from sexual relations and, consequently, there have been no pregnancies.

Generalized abdominal pain, associated with distention and excessive amounts of gas, came on one month previous to admission. This was most severe two to five hours after meals, and also kept her awake at night. Fasting and the use of enemas gave a degree of relief, and she had fasted three days when she was admitted. There had been swelling of the ankles, which started at the age of sixteen, and this swelling was more marked in recent years. Recently she has slept with the foot of her bed elevated to reduce the swelling. Pain and stiffness of joints of fingers had been noted. Nocturia once had become a usual occurrence.

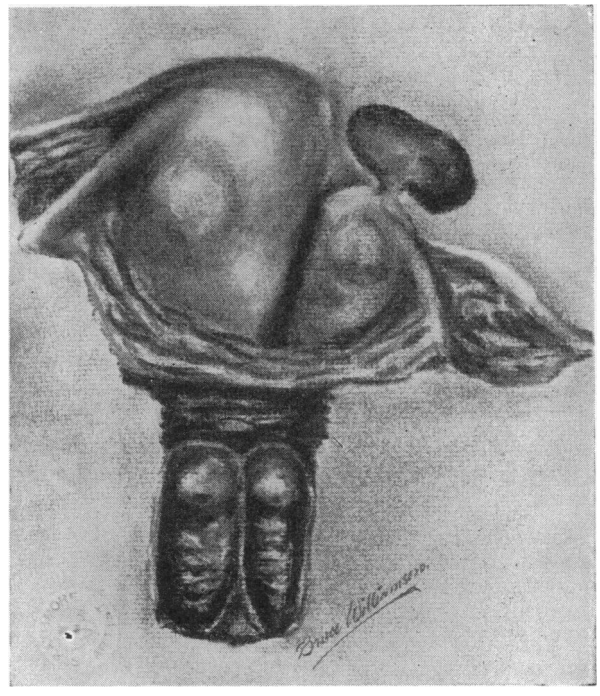

Fig. 1.—Diagrammatic drawing showing anatomic features and relationships.

Examination showed a pale but well-nourished white female. There is a transverse scar on the neck. The findings of the heart and lungs were essentially normal. Blood pressure was 130/75. Upper abdominal findings were normal, but there was hyperesthesia and resistance in the lower abdomen, which was more marked on the right. A mass seven centimeters across could be felt in the lower right quadrant. There was puffiness of the ankles. No swelling of the joints of fingers could be detected. Vaginal examination was unsuccessful, because the introitus was so small that one finger could not be introduced without pain. No other abnormality of the external genitalia was noted at this time. Bimanual examination was done with the finger in the rectum. A mass was outlined to the left which was interpreted to be the uterus displaced to that side. On the right was a larger mass, which was quite hard. There was no induration of tissues, but the masses palpated were firm and irregular. It was not determined whether the two masses were attached or separate.

Blood count was reported as follows: Hemoglobin, 50 per cent; red cells, 3,380,000; white cells, 5,800. The differential showed a lymphocytosis. The urine findings were normal.

Operation.—The patient entered the hospital August 12, 1935, and laparotomy was performed the following day. Midline incision above the pubis was made, and exploration revealed a large uterus lying in the right side of the pelvis. On the left another enlarged uterus with fibroid pedunculated from the fundus was found. The uteri were not united above the cervix, and a strip of peritoneum passed from the bladder to the cul-de-sac between them. Each uterus had one round ligament, and one fallopian tube with normal ovaries in relation to the tubes.

The procedure consisted of removal of the fibroid from the left uterus to improve exposure, followed by removal of that uterus, leaving the cervix *in situ*. The large uterus on the right was next removed, leaving the cervix. Fallopian tubes and ovaries were left in both sides. After careful ligation of uterine and ovarian vessels, the round ligaments were sutured into the stump of the cervix on each side, and the bladder fold of peritoneum was sutured over the raw areas. Appendectomy was done, after which the abdomen was closed by my usual technique. Permission to do plastic on the introitus had been denied, so it was not done at this time.

Permission was subsequently obtained, and on August 20 examination and plastic procedure were carried out. Two openings were found inside the labia minora, with a vertical septum between them. The opening on the right would admit the tip of the finger, but the left was smaller. The hymen was not ruptured. The openings were enlarged, and the septum was found to extend the entire length of the vagina, and a small virgin cervix was found at the apex of each vagina. The septum was severed between clamps, and sutures were placed to prevent bleeding.

The pathologist reported that the right uterus measured 11 x 12 x 9 centimeters and weighed 454 grams. The left uterus measured 7.5 x 7 x 5 centimeters and, together with the pedunculated fibromyoma, weighed 220 grams. The pedunculated fibromyoma measured 8 x 5.5 x 5 centimeters and weighed 94 grams. Numerous other fibromyoma were found in both uteri; the largest one measured eight centimeters in diameter.

The patient had an uneventful convalescence. Examination four months later revealed satisfactory healing. The vagina admitted two fingers and is of normal depth. Satisfactory coitus was reported. Blood count was near normal.

FUNDAMENTAL PRINCIPLES IN FRACTURE SURGERY

By H. W. SPIERS, M.D.
Los Angeles

THE treatment of fractures in recent years has been assuming more and more the center of the surgical stage. The x-ray spotlight is focused on the fracture surgeon. The age of high-speed transportation for rich and poor alike is producing an ever-increasing number of serious fracture problems. It behooves even those who see these cases only occasionally to be prepared in the essentials of successful treatment.

There seem to be four fundamental principles in the treatment of all fractures. They are:

1. Reduce by traction and countertraction.
2. Place the distal fragment in line with the proximal fragment.
3. Immobilize until firm union takes place.
4. Immobilize the joints proximal and distal to the site of the fracture.

Proper consideration and coördination of these principles will, in the large majority of cases, keep the fracture surgeon on the high road to success.

Nature's invariable and involuntary response to bony structural damage is muscle spasm. It is nature's method of splinting the part. Overriding and malalignment is due to, in a large part, and maintained by, muscle spasm. There are several ways of overcoming muscle spasm:

(*a*) Anesthesia—general, spinal, block, or local.
(*b*) Temporary traction by hand, by traction tables, frames, and the like.
(*c*) Continuous traction—skin or skeletal.

To correct overriding of the fragments, traction and countertraction with, or without the assistance of anesthesia, would seem to be and is a mechanical necessity. The distal fragment must be pulled by the fixed proximal one until the normal length is restored.

The distal fragment should be placed in line with the proximal one. Proper alignment is mechanically essential if the part is to be restored functionally unimpaired. A study of fractures will soon convince one that the proximal fragment, attached to its fulcrum, is still a lever responsive to certain, though changed, muscle-pulls. In general, it assumes a fairly fixed position. The position of this fragment is not readily changed. On the other hand, the distal fragment is the free one in most instances. It is readily manipulated and aligned. Therefore, the second fundamental principle requires consideration in proper treatment. End-to-end apposition of fragments is not necessarily essential to a satisfactory functional or cosmetic result, but it is desirable. Alignment is essential. Variation from normal alignment of the shaft of a bone always means mechanically defective function. Malalignment of the crankshaft of your automobile means bearing trouble promptly. The same applies to the extremities or the trunk. This is particularly true of the lower weight-bearing extremity. This principle is being more and more evaluated in the care of fractures of the spine. Restore the normal curves, and normal function will be more surely restored.

The sequence of events that takes place in establishing bony union is quite definitely known. Disturbance of this sequence seems, to a degree, to be resented by nature. Injudicious mobilization of fractures during the early stages of union is, in too large a number of cases, responsible for the delayed and nonunions increasingly seen. The fracture site must be immobile until firm union takes place. The third fundamental principle requires careful consideration in the plan of treatment.

Fixation of the joints proximal and distal to the fracture site, in general, is a mechanical necessity. If one fragment is free to move, immobilization and alignment requirements are violated. Special instances, as Colles's fractures and the like, allow violation of this fourth fundamental. It is largely applicable in fixation by splints, braces, casts, and the like. Certain traction methods allow for function of one or both of the proximal and distal joints, but they must be considered a special and exceptional method, and thought of as such.

A word about the plan of treatment: To no small extent does the successful treatment of a fracture depend upon the plan as outlined at the beginning. In general there are many ways of handling each fracture problem. Certain serious fractures must be hospitalized. Some require recumbency. Others can be made ambulatory. Often a patient must be protected against himself, thus requiring "foolproof" care. The social, economic, and many other factors require consideration. Once a plan has been laid out, follow it through until its inadequacy has been proved. Often complications require a change, but with the change see that a new, well-thought-out plan is established.

In conclusion: It is well to think through each fracture problem and plan its treatment in accord with the fundamental principles in the care of all fractures if an ultimate high percentage of success is to be obtained.

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